

Appendix C

Background Future Intersection Capacity Analyses

The Randall School
1: Eye Street SW & Delaware Avenue

Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			0.99			0.97			0.97	
Flt Protected		1.00			1.00			0.97			0.97	
Satd. Flow (prct)		1550			1549			1449			1461	
Flt Permitted		0.97			0.97			0.83			0.87	
Satd. Flow (perm)		1505			1509			1238			1308	
Volume (vph)	15	235	10	28	412	19	39	7	15	10	3	4
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	255	11	30	448	21	42	8	16	11	3	4
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	281	0	0	499	0	0	66	0	0	18	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases	2				6		8				4	
Permitted Phases	2				6		8				4	
Actuated Green, G (s)	72.0				72.0		18.0				18.0	
Effective Green, g (s)	73.0				73.0		19.0				19.0	
Actuated g/C Ratio	0.73				0.73		0.19				0.19	
Clearance Time (s)	5.0				5.0		5.0				5.0	
Lane Grp Cap (vph)	1099				1102		235				249	
v/s Ratio Prot												
v/s Ratio Perm	0.19				0.33		0.05				0.01	
v/c Ratio	0.26				0.45		0.28				0.07	
Uniform Delay, d1	4.5				5.4		34.7				33.3	
Progression Factor	1.00				1.00		0.95				1.00	
Incremental Delay, d2	0.6				1.3		2.4				0.6	
Delay (s)	5.0				6.8		35.3				33.8	
Level of Service	A				A		D				C	
Approach Delay (s)	5.0				6.8		35.3				33.8	
Approach LOS	A				A		D				C	
Intersection Summary												
HCM Average Control Delay			9.0			HCM Level of Service			A			
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			81.7%			ICU Level of Service			D			
Analysis Period (min)			15									
Critical Lane Group												

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1			1	1	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	215	56	98	410	66	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	234	61	107	446	72	70
Pedestrians	2			5	8	
Lane Width (ft)	10.0			10.0	10.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	1	
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)	670			452		
pX, platoon unblocked					0.78	
vC, conflicting volume			303		933	277
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			303		914	277
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		67	91
cM capacity (veh/h)			1251		214	755
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	295	552	141			
Volume Left	0	107	72			
Volume Right	61	0	70			
cSH	1700	1251	331			
Volume to Capacity	0.17	0.09	0.43			
Queue Length 95th (ft)	0	7	51			
Control Delay (s)	0.0	2.3	23.7			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.3	23.7			
Approach LOS			C			
Intersection Summary						
Average Delay			4.7			
Intersection Capacity Utilization		65.9%		ICU Level of Service	C	
Analysis Period (min)		15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00		0.91		0.91	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	0.98		1.00		1.00	0.98	
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85		1.00		1.00	0.85	
Flt Protected		0.98	1.00		1.00	1.00		1.00		1.00	1.00	
Satd. Flow (prot)		1529	1298		1565	1304		4253		4272	1301	
Flt Permitted		0.12	1.00		1.00	1.00		1.00		1.00	1.00	
Satd. Flow (perm)		184	1298		1565	1304		4253		4272	1301	
Volume (vph)	92	105	111	0	397	230	0	2353	59	0	2104	133
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	114	121	0	432	250	0	2558	64	0	2287	145
RTOR Reduction (vph)	0	0	9	0	0	5	0	2	0	0	0	29
Lane Group Flow (vph)	0	214	112	0	432	245	0	2620	0	0	2287	116
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	Perm		Perm			Perm						Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		29.0	29.0		24.0	24.0		81.0			81.0	81.0
Effective Green, g (s)		29.0	29.0		29.0	29.0		83.0			83.0	83.0
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.69			0.69	0.69
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		44	314		378	315		2942			2955	900
v/s Ratio Prot					0.28			0.62			0.54	
v/s Ratio Perm		0.16	0.09			0.19						0.09
v/c Ratio		4.86	0.36		1.14	0.78		0.89			0.77	0.13
Uniform Delay, d1		45.5	37.8		45.5	42.5		14.9			12.3	6.3
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		1788.7	3.1		91.2	17.2		4.6			2.0	0.3
Delay (s)		1834.2	40.9		136.7	59.7		19.4			14.3	6.6
Level of Service		F	D		F	E		B			B	A
Approach Delay (s)		1186.5			108.4			19.4			13.9	
Approach LOS		F			F			B			B	
Intersection Summary												
HCM Average Control Delay		91.6			HCM Level of Service			F				
HCM Volume to Capacity ratio		1.91										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			3.0				
Intersection Capacity Utilization		124.9%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
4: M St SW & Delaware Avenue

Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕↕		↕	↕↕↕			↕				↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0				4.0
Lane Util. Factor		0.91		1.00	0.91			1.00				1.00
Frpb, ped/bikes		0.99		1.00	1.00			0.99				1.00
Flpb, ped/bikes		1.00		0.99	1.00			1.00				1.00
Frt		0.99		1.00	0.99			0.96				0.86
Flt Protected		1.00		0.95	1.00			0.97				1.00
Satd. Flow (prot)		4197		1467	4224			1437				1353
Flt Permitted		0.92		0.32	1.00			0.97				1.00
Satd. Flow (perm)		3855		502	4224			1437				1353
Volume (vph)	6	666	59	34	1590	81	48	10	28	0	0	19
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	724	64	37	1728	88	52	11	30	0	0	21
RTOR Reduction (vph)	0	10	0	0	6	0	0	17	0	0	0	15
Lane Group Flow (vph)	0	785	0	37	1810	0	0	76	0	0	0	6
Confl. Peds. (#/hr)	18		13	13		18	7		12	12		7
Turn Type	Perm			Perm			Perm					custom
Protected Phases		2			6			8				4
Permitted Phases	2			6			8					4
Actuated Green, G (s)		64.0		64.0	64.0			26.0				26.0
Effective Green, g (s)		65.0		65.0	65.0			27.0				27.0
Actuated g/C Ratio		0.65		0.65	0.65			0.27				0.27
Clearance Time (s)		5.0		5.0	5.0			5.0				5.0
Lane Grp Cap (vph)		2506		326	2746			388				365
v/s Ratio Prot					0.43							0.00
v/s Ratio Perm		0.20		0.07				0.05				
v/c Ratio		0.31		0.11	0.66			0.20				0.02
Uniform Delay, d1		7.7		6.6	10.7			28.1				26.8
Progression Factor		1.00		0.45	0.68			1.00				0.87
Incremental Delay, d2		0.3		0.5	0.8			1.1				0.1
Delay (s)		8.0		3.4	8.1			29.3				23.2
Level of Service		A		A	A			C				C
Approach Delay (s)		8.0			8.0			29.3			23.2	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay	8.9			HCM Level of Service				A				
HCM Volume to Capacity ratio	0.52											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)				8.0				
Intersection Capacity Utilization	77.7%			ICU Level of Service				D				
Analysis Period (min)	15											
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (v/hpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00						1.00	
Frt	1.00	0.99		1.00	0.99						0.93	
Flt Protected	0.95	1.00		0.95	1.00						0.99	
Satd. Flow (prot)	1486	4220		1481	4236						1417	
Flt Permitted	0.06	1.00		0.30	1.00						0.99	
Satd. Flow (perm)	98	4220		466	4236						1417	
Volume (vph)	64	740	52	36	1768	85	0	0	0	27	21	45
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	804	57	39	1922	92	0	0	0	29	23	49
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	70	853	0	39	2014	0	0	0	0	0	101	0
Confl. Peds. (#/hr)	16		15	15		16	15		9	9		15
Turn Type	Perm			Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)	63.0	63.0		63.0	63.0						26.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0						28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64						0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)	63	2701		298	2711						397	
v/s Ratio Prot		0.20			0.48							
v/s Ratio Perm	0.71			0.08							0.07	
v/c Ratio	1.11	0.32		0.13	0.74						0.25	
Uniform Delay, d1	18.0	8.1		7.1	12.4						27.9	
Progression Factor	1.72	0.98		1.17	0.87						0.99	
Incremental Delay, d2	146.0	0.3		0.6	1.2						1.5	
Delay (s)	176.8	8.3		8.8	12.0						29.2	
Level of Service	F	A		A	B						C	
Approach Delay (s)		21.0			11.9		0.0				29.2	
Approach LOS		C			B		A				C	
Intersection Summary												
HCM Average Control Delay		15.2		HCM Level of Service			B					
HCM Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		100.0		Sum of lost time (s)			8.0					
Intersection Capacity Utilization		87.4%		ICU Level of Service			E					
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
6: M St SW & Local S Cap SB

Background AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Frt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		1.00					0.95	0.97	
Satd. Flow (prot)		4577	1425		4566					1513	1509	
Flt Permitted		1.00	1.00		0.89					0.95	0.97	
Satd. Flow (perm)		4577	1425		4090					1513	1509	
Volume (vph)	0	511	279	90	1870	0	0	0	0	458	59	41
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	568	310	100	2078	0	0	0	0	509	66	46
RTOR Reduction (vph)	0	0	248	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	568	62	0	2178	0	0	0	0	310	305	0
Turn Type		Perm D.P+P									Split	
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		18.0	18.0		64.0					24.0	24.0	
Effective Green, g (s)		20.0	20.0		65.0					26.0	26.0	
Actuated g/C Ratio		0.20	0.20		0.65					0.26	0.26	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		915	285		2873					393	392	
v/s Ratio Prot		0.12			c0.34					c0.20	0.20	
v/s Ratio Perm			0.04		c0.15							
v/c Ratio		0.62	0.22		0.76					0.79	0.78	
Uniform Delay, d1		36.5	33.5		12.1					34.4	34.3	
Progression Factor		0.86	2.88		0.05					1.00	1.00	
Incremental Delay, d2		3.1	1.7		0.2					14.8	14.1	
Delay (s)		34.6	98.1		0.7					49.2	48.4	
Level of Service		C	F		A					D	D	
Approach Delay (s)		57.0			0.7			0.0			48.8	
Approach LOS		E			A			A			D	
Intersection Summary												
HCM Average Control Delay		22.3			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		88.6%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		↰	↰
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	22	0	0	0	0	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	0	0	0	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)		552				
pX, platoon unblocked						
vC, conflicting volume	0				48	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				48	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free: %	99				100	100
cM capacity (veh/h)	1623				948	1085
Direction, Lane #						
	EB 1	WB 1	SB 1			
Volume Total	24	0	3			
Volume Left	24	0	0			
Volume Right	0	0	3			
cSH	1623	1700	1085			
Volume to Capacity	0.01	0.00	0.00			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	7.3	0.0	8.3			
Lane LOS	A		A			
Approach Delay (s)	7.3	0.0	8.3			
Approach LOS			A			
Intersection Summary						
Average Delay		7.4				
Intersection Capacity Utilization		13.3%		ICU Level of Service		A
Analysis Period (min)		15				

The Randall School
66: M St SW & Local S Cap NB

Background AM

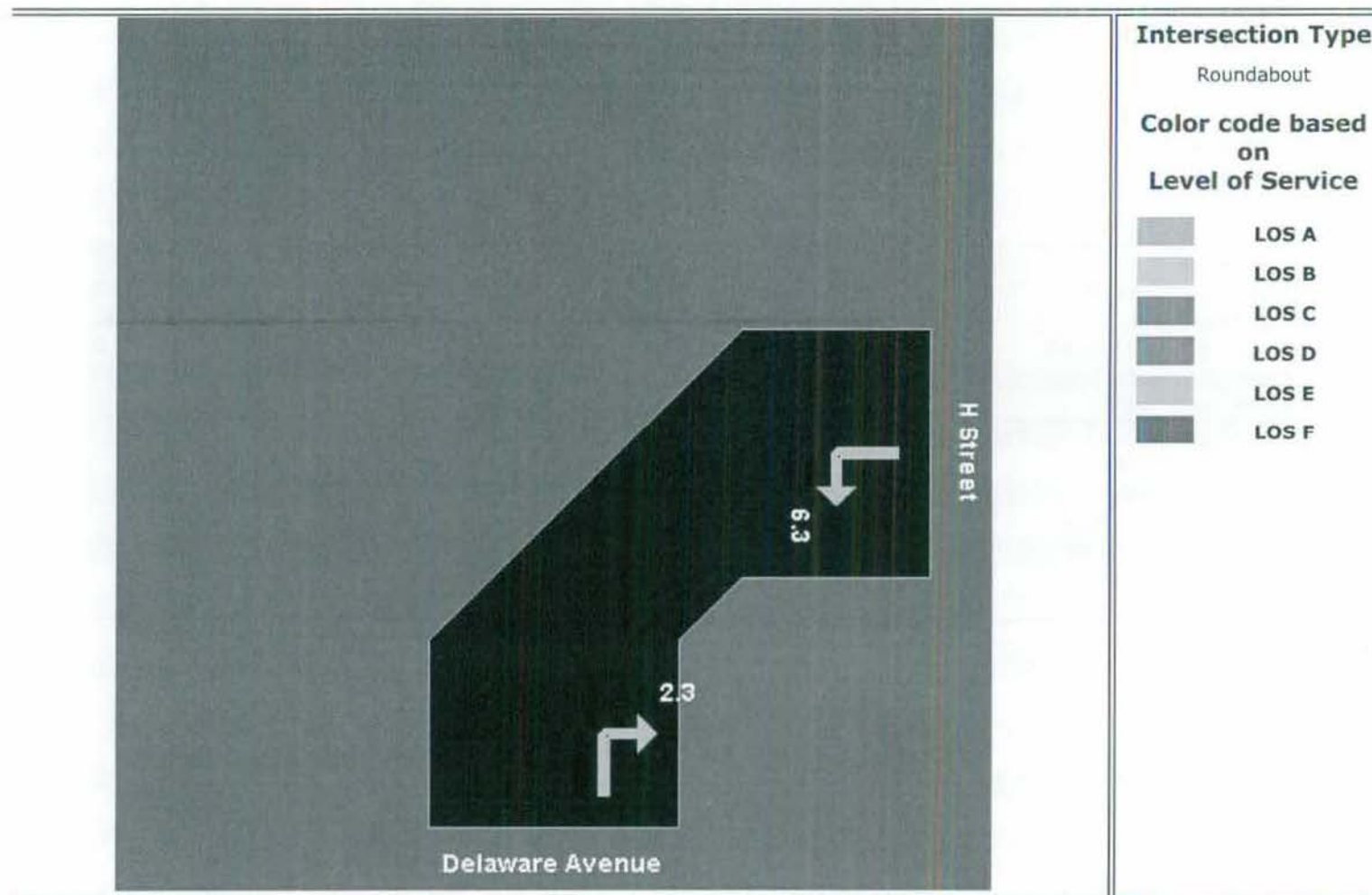
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↑	↑				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Frt		1.00			0.99		1.00	0.98				
Flt Protected		1.00			1.00		0.95	0.96				
Satd. Flow (prot)		4561			4523		1513	1512				
Flt Permitted		0.81			1.00		0.95	0.96				
Satd. Flow (perm)		3730			4523		1513	1512				
Volume (vph)	66	903	0	0	591	50	1369	126	83	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	1003	0	0	657	56	1521	140	92	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	1076	0	0	703	0	878	871	0	0	0	0
Turn Type	D,P+P						Split					
Protected Phases	7	5 7			5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		43.0			14.0		43.0	43.0				
Effective Green, g (s)		46.0			15.0		45.0	45.0				
Actuated g/C Ratio		0.46			0.15		0.45	0.45				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		1973			678		681	680				
v/s Ratio Prot		c0.17			c0.16		c0.58	0.58				
v/s Ratio Perm		0.08										
v/c Ratio		0.55			1.04		1.29	1.28				
Uniform Delay, d1		19.5			42.5		27.5	27.5				
Progression Factor		0.09			1.00		1.00	1.00				
Incremental Delay, d2		0.8			44.4		141.0	137.2				
Delay (s)		2.6			86.9		168.5	164.7				
Level of Service		A			F		F	F				
Approach Delay (s)		2.6			86.9		166.6				0.0	
Approach LOS		A			F		F				A	
Intersection Summary												
HCM Average Control Delay		100.7			HCM Level of Service		F					
HCM Volume to Capacity ratio		0.99										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)		9.0					
Intersection Capacity Utilization		93.4%			ICU Level of Service		F					
Analysis Period (min)		15										
c Critical Lane Group												

Control Delay (Average)

Average control delay per vehicle (seconds)

Randall School

Delaware Avenue & H Street BG AM Peak Hour



The Randall School
1: Eye Street SW & Delaware Avenue

Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.92			0.95	
Flt Protected		1.00			1.00			0.98			0.97	
Satd. Flow (prot)		1553			1545			1396			1431	
Flt Permitted		0.99			0.92			0.89			0.75	
Satd. Flow (perm)		1544			1428			1261			1098	
Volume (vph)	15	798	34	18	214	13	45	13	80	47	8	31
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	867	37	20	233	14	49	14	87	51	9	34
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	918	0	0	267	0	0	150	0	0	94	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		72.0			72.0			18.0			18.0	
Effective Green, g (s)		73.0			73.0			19.0			19.0	
Actuated g/C Ratio		0.73			0.73			0.19			0.19	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1127			1042			240			209	
v/s Ratio Prot												
v/s Ratio Perm		c0.59			0.19			c0.12			0.09	
v/c Ratio		0.81			0.26			0.62			0.45	
Uniform Delay, d1		9.0			4.5			37.2			35.9	
Progression Factor		1.00			1.00			0.88			1.00	
Incremental Delay, d2		6.5			0.6			11.4			6.9	
Delay (s)		15.5			5.1			44.2			42.7	
Level of Service		B			A			D			D	
Approach Delay (s)		15.5			5.1			44.2			42.7	
Approach LOS		B			A			D			D	
Intersection Summary												
HCM Average Control Delay		18.4			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		81.7%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1			1	1	
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	674	185	75	176	66	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	733	201	82	191	72	60
Pedestrians	2			5	8	
Lane Width (ft)	10.0			10.0	10.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	1	
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)	670			452		
pX, platoon unblocked			0.62		0.66	0.62
vC, conflicting volume			942		1198	846
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			907		1139	754
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			83		40	76
cM capacity (veh/h)			466		120	253
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	934	273	132			
Volume Left	0	82	72			
Volume Right	201	0	60			
cSH	1700	466	158			
Volume to Capacity	0.55	0.17	0.83			
Queue Length 95th (ft)	0	16	139			
Control Delay (s)	0.0	6.3	89.9			
Lane LOS		A	F			
Approach Delay (s)	0.0	6.3	89.9			
Approach LOS			F			
Intersection Summary						
Average Delay			10.1			
Intersection Capacity Utilization			85.9%		ICU Level of Service	E
Analysis Period (min)			15			

The Randall School
3: Eye Street SW & S Capitol St

Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		0.99	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		0.96	0.85		1.00	0.85		0.99			1.00	0.85
Flt Protected		0.99	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1393	1233		1565	1304		4242			4272	1299
Flt Permitted		0.75	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		1052	1233		1565	1304		4242			4272	1299
Volume (vph)	86	174	534	0	154	290	0	1758	71	0	2181	93
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	189	580	0	167	315	0	1911	77	0	2371	101
RTOR Reduction (vph)	0	8	8	0	0	19	0	4	0	0	0	31
Lane Group Flow (vph)	0	390	456	0	167	296	0	1984	0	0	2371	70
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	Perm		Perm			Perm						Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		29.0	29.0		24.0	24.0		81.0			81.0	81.0
Effective Green, g (s)		29.0	29.0		29.0	29.0		83.0			83.0	83.0
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.69			0.69	0.69
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		254	298		378	315		2934			2955	898
v/s Ratio Prot					0.11			0.47			0.56	
v/s Ratio Perm		0.37	0.37			0.23						0.05
v/c Ratio		1.54	1.53		0.44	0.94		0.68			0.80	0.08
Uniform Delay, d1		45.5	45.5		38.6	44.6		10.7			12.8	6.0
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		260.5	255.5		3.7	37.4		1.3			2.4	0.2
Delay (s)		306.0	301.0		42.3	82.1		12.0			15.2	6.2
Level of Service		F	F		D	F		B			B	A
Approach Delay (s)		303.3			68.3			12.0			14.9	
Approach LOS		F			E			B			B	
Intersection Summary												
HCM Average Control Delay		61.2			HCM Level of Service			E				
HCM Volume to Capacity ratio		0.99										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		104.8%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑			↑				↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0				4.0
Lane Util. Factor		0.91		1.00	0.91			1.00				1.00
Frpb, ped/bikes		1.00		1.00	0.99			1.00				0.98
Flpb, ped/bikes		1.00		1.00	1.00			0.99				1.00
Frt		0.99		1.00	0.99			0.98				0.86
Flt Protected		1.00		0.95	1.00			0.97				1.00
Satd. Flow (prot)		4228		1481	4210			1471				1327
Flt Permitted		0.93		0.14	1.00			0.97				1.00
Satd. Flow (perm)		3920		217	4210			1471				1327
Volume (vph)	11	1279	63	18	963	65	67	16	13	0	0	45
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1390	68	20	1047	71	73	17	14	0	0	49
RTOR Reduction (vph)	0	5	0	0	8	0	0	6	0	0	0	36
Lane Group Flow (vph)	0	1465	0	20	1110	0	0	98	0	0	0	13
Confl. Peds. (#/hr)	18		13	13		18	7		12	12		7
Turn Type	Perm		Perm		Perm						custom	
Protected Phases	2				6				8			
Permitted Phases	2				6		8				4	
Actuated Green, G (s)	64.0		64.0		64.0		26.0				26.0	
Effective Green, g (s)	65.0		65.0		65.0		27.0				27.0	
Actuated g/C Ratio	0.65		0.65		0.65		0.27				0.27	
Clearance Time (s)	5.0		5.0		5.0		5.0				5.0	
Lane Grp Cap (vph)	2548		141		2737		397				358	
v/s Ratio Prot					0.26							
v/s Ratio Perm	0.37		0.09				0.07				0.01	
v/c Ratio	0.57		0.14		0.41		0.25				0.04	
Uniform Delay, d1	9.8		6.7		8.3		28.6				26.9	
Progression Factor	1.00		1.09		1.05		1.00				1.00	
Incremental Delay, d2	1.0		2.0		0.4		1.5				0.2	
Delay (s)	10.7		9.4		9.2		30.0				27.1	
Level of Service	B		A		A		C				C	
Approach Delay (s)	10.7				9.2		30.0				27.1	
Approach LOS	B				A		C				C	
Intersection Summary												
HCM Average Control Delay			11.1		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			65.9%		ICU Level of Service				C			
Analysis Period (min)			15									
c Critical Lane Group												

The Randall School
5: M St SW & Half St SW

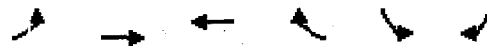
Background PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  						  	
Ideal Flow (vphpl)	900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Frt	1.00	1.00		1.00	0.99						0.96	
Flt Protected	0.95	1.00		0.95	1.00						0.97	
Satd. Flow (prot)	1482	4261		1485	4206						1443	
Flt Permitted	0.24	1.00		0.08	1.00						0.97	
Satd. Flow (perm)	374	4261		121	4206						1443	
Volume (vph)	113	1706	23	39	877	81	0	0	0	82	27	45
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	1854	25	42	953	88	0	0	0	89	29	49
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	123	1878	0	42	1041	0	0	0	0	0	167	0
Confl. Peds. (#/hr)	16		15	15		16	15		9	9		15
Turn Type	Perm			Perm						Perm		
Protected Phases	2			6						4		
Permitted Phases	2			6						4		
Actuated Green, G (s)	63.0	63.0		63.0	63.0						26.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0						28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64						0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)	239	2727		77	2692						404	
v/s Ratio Prot		0.44			0.25							
v/s Ratio Perm	0.33			0.35							0.12	
v/c Ratio	0.51	0.69		0.55	0.39						0.41	
Uniform Delay, d1	9.7	11.6		10.0	8.6						29.3	
Progression Factor	1.90	1.92		1.16	1.15						0.91	
Incremental Delay, d2	7.2	1.3		23.4	0.4						2.6	
Delay (s)	25.6	23.5		34.9	10.3						29.3	
Level of Service	C	C		C	B						C	
Approach Delay (s)		23.7			11.2			0.0			29.3	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM Average Control Delay	19.8			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.60											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	91.1%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Flt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		0.99					0.95	0.98	
Satd. Flow (prot)		4577	1425		4543					1513	1525	
Flt Permitted		1.00	1.00		0.70					0.95	0.98	
Satd. Flow (perm)		4577	1425		3196					1513	1525	
Volume (vph)	0	763	607	145	839	0	0	0	0	299	87	30
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	848	674	161	932	0	0	0	0	332	97	33
RTOR Reduction (vph)	0	0	398	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	848	276	0	1093	0	0	0	0	228	228	0
Turn Type		Perm		D.P+P						Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		39.0	39.0		64.0					24.0	24.0	
Effective Green, g (s)		41.0	41.0		65.0					26.0	26.0	
Actuated g/C Ratio		0.41	0.41		0.65					0.26	0.26	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		1877	584		2401					393	397	
v/s Ratio Prot		0.19			0.11					0.15	0.15	
v/s Ratio Perm			0.19		0.19							
v/c Ratio		0.45	0.47		0.46					0.58	0.57	
Uniform Delay, d1		21.4	21.6		8.7					32.2	32.2	
Progression Factor		0.98	7.14		0.08					1.00	1.00	
Incremental Delay, d2		0.6	2.0		0.5					6.1	5.9	
Delay (s)		21.4	156.2		1.1					38.4	38.1	
Level of Service		C	F		A					D	D	
Approach Delay (s)		81.1			1.1			0.0			38.2	
Approach LOS		F			A			A			D	
Intersection Summary												
HCM Average Control Delay		46.3			HCM Level of Service					D		
HCM Volume to Capacity ratio		0.50										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)					9.0		
Intersection Capacity Utilization		85.8%			ICU Level of Service					E		
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
7: H Street SW & 700 Delaware Avenue Driveway

Background PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	11	0	0	0	0	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	0	0	0	60
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)		551				
pX, platoon unblocked						
vC, conflicting volume	0				24	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				24	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				100	94
cM capacity (veh/h)	1623				985	1085
Direction, Lane #	E 3 1	WB 1	SB 1			
Volume Total	12	0	60			
Volume Left	12	0	0			
Volume Right	0	0	60			
cSH	1623	1700	1085			
Volume to Capacity	0.01	0.00	0.06			
Queue Length 95th (ft)	1	0	4			
Control Delay (s)	7.2	0.0	8.5			
Lane LOS	A		A			
Approach Delay (s)	7.2	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			8.3			
Intersection Capacity Utilization		13.8%		ICU Level of Service	A	
Analysis Period (min)		15				

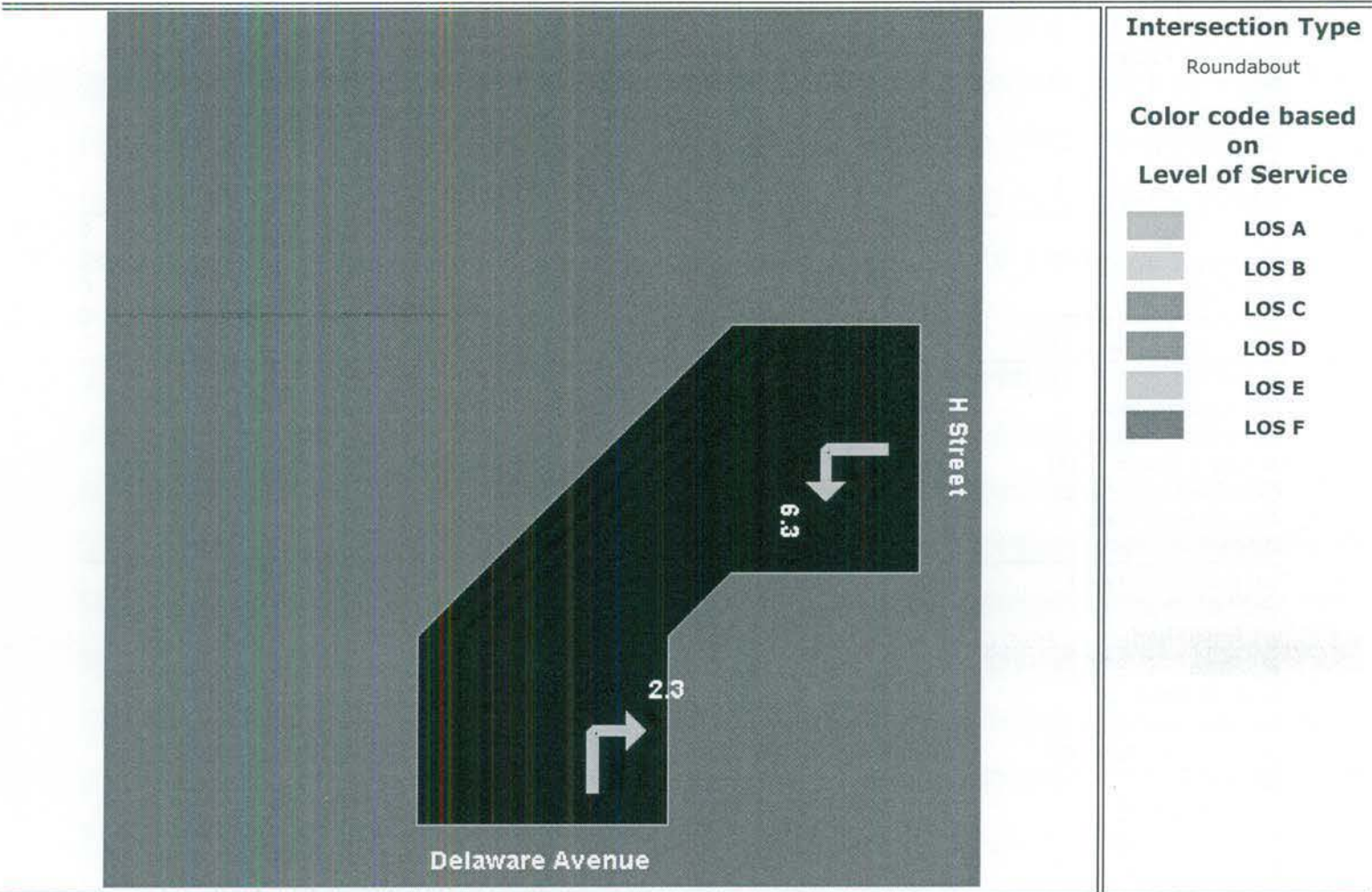
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↑	↑				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Frt		1.00			0.96		1.00	0.95				
Flt Protected		1.00			1.00		0.95	0.99				
Satd. Flow (prot)		4567			4402		1513	1496				
Flt Permitted		0.88			1.00		0.95	0.99				
Satd. Flow (perm)		4041			4402		1513	1496				
Volume (vph)	47	1015	0	0	653	222	331	102	82	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	52	1128	0	0	726	247	368	113	91	0	0	0
RTOR Reduction (vph)	0	0	0	0	61	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	1180	0	0	912	0	282	273	0	0	0	0
Turn Type	D.P+P						Split					
Protected Phases	7	5	7		5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		64.0			35.0		22.0	22.0				
Effective Green, g (s)		67.0			36.0		24.0	24.0				
Actuated g/C Ratio		0.67			0.36		0.24	0.24				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		2871			1585		363	359				
v/s Ratio Pro		0.13			0.21		0.19	0.18				
v/s Ratio Perm		0.15										
v/c Ratio		0.41			0.58		0.78	0.76				
Uniform Delay, d1		7.5			25.8		35.5	35.3				
Progression Factor		0.13			1.00		1.00	1.00				
Incremental Delay, d2		0.4			1.5		15.0	14.1				
Delay (s)		1.4			27.4		50.5	49.5				
Level of Service		A			C		D	D				
Approach Delay (s)		1.4			27.4		50.0				0.0	
Approach LOS		A			C		D				A	
Intersection Summary												
HCM Average Control Delay			20.8			HCM Level of Service			C			
HCM Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			68.3%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Control Delay (Average)

Average control delay per vehicle (seconds)

Randall School

Delaware Avenue & H Street BG PM Peak Hour



Appendix D

Total Future Intersection Capacity Analyses

The Randall School
1: Eye Street SW & Delaware Avenue

Total Future AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			0.99			0.97			0.96	
Flt Protected		1.00			1.00			0.97			0.97	
Satd. Flow (prot)		1548			1545			1454			1446	
Flt Permitted		0.95			0.97			0.81			0.82	
Satd. Flow (perm)		1471			1504			1221			1216	
Volume (vph)	22	235	10	28	412	28	39	9	15	60	11	28
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	255	11	30	448	30	42	10	16	65	12	30
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	289	0	0	508	0	0	68	0	0	107	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		72.0			72.0			18.0			18.0	
Effective Green, g (s)		73.0			73.0			19.0			19.0	
Actuated g/C Ratio		0.73			0.73			0.19			0.19	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1074			1098			232			231	
v/s Ratio Prot												
v/s Ratio Perm		0.20			0.34			0.06			0.09	
v/c Ratio		0.27			0.46			0.29			0.46	
Uniform Delay, d1		4.5			5.5			34.7			36.0	
Progression Factor		1.00			1.00			0.95			1.00	
Incremental Delay, d2		0.6			1.4			2.6			6.5	
Delay (s)		5.1			6.9			35.4			42.5	
Level of Service		A			A			D			D	
Approach Delay (s)		5.1			6.9			35.4			42.5	
Approach LOS		A			A			D			D	
Intersection Summary												
HCM Average Control Delay		12.3			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.46										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		81.7%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
3: Eye Street SW & S Capitol St

Total Future AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↑	↗		↑↑↑			↑↑↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.85		1.00	0.85		1.00			1.00	0.85
Flt Protected		0.98	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1527	1298		1565	1304		4253			4272	1301
Flt Permitted		0.10	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		161	1298		1565	1304		4253			4272	1301
Volume (vph)	116	120	119	0	399	230	0	2353	59	0	2104	140
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	130	129	0	434	250	0	2558	64	0	2287	152
RTOR Reduction (vph)	0	0	9	0	0	5	0	2	0	0	0	29
Lane Group Flow (vph)	0	256	120	0	434	245	0	2620	0	0	2287	123
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	Perm		Perm			Perm						Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		29.0	29.0		24.0	24.0		81.0			81.0	81.0
Effective Green, g (s)		29.0	29.0		29.0	29.0		83.0			83.0	83.0
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.69			0.69	0.69
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		39	314		378	315		2942			2955	900
v/s Ratio Prot					0.28			c0.62			0.54	
v/s Ratio Perm		c1.59	0.09			0.19						0.09
v/c Ratio		6.56	0.38		1.15	0.78		0.89			0.77	0.14
Uniform Delay, d1		45.5	38.0		45.5	42.5		14.9			12.3	6.3
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		2557.2	3.5		93.1	17.2		4.6			2.0	0.3
Delay (s)		2602.7	41.5		138.6	59.7		19.4			14.3	6.6
Level of Service		F	D		F	E		B			B	A
Approach Delay (s)		1744.5			109.8			19.4			13.8	
Approach LOS		F			F			B			B	
Intersection Summary												
HCM Average Control Delay		135.6			HCM Level of Service			F				
HCM Volume to Capacity ratio		2.36										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		125.0%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Frt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		1.00					0.95	0.97	
Satd. Flow (prot)		4577	1425		4566					1513	1509	
Flt Permitted		1.00	1.00		0.89					0.95	0.97	
Satd. Flow (perm)		4577	1425		4091					1513	1509	
Volume (vph)	0	511	279	90	1872	0	0	0	0	458	59	41
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	568	310	100	2080	0	0	0	0	509	66	46
RTOR Reduction (vph)	0	0	248	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	568	62	0	2180	0	0	0	0	310	305	0
Turn Type		Perm D,P+P								Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		18.0	18.0		64.0					24.0	24.0	
Effective Green, g (s)		20.0	20.0		65.0					26.0	26.0	
Actuated g/C Ratio		0.20	0.20		0.65					0.26	0.26	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		915	285		2873					393	392	
v/s Ratio Prot		0.12			0.34					0.20	0.20	
v/s Ratio Perm			0.04		0.15							
v/c Ratio		0.62	0.22		0.76					0.79	0.78	
Uniform Delay, d1		36.5	33.5		12.1					34.4	34.3	
Progression Factor		0.86	2.88		0.05					1.00	1.00	
Incremental Delay, d2		3.1	1.7		0.2					14.8	14.1	
Delay (s)		34.6	98.1		0.7					49.2	48.4	
Level of Service		C	F		A					D	D	
Approach Delay (s)		57.0			0.7			0.0			48.8	
Approach LOS		E			A			A			D	
Intersection Summary												
HCM Average Control Delay		22.3			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		88.6%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
66: M St SW & Local S Cap NB

Total Future AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↑	↑				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Frt		1.00			0.99		1.00	0.98				
Flt Protected		1.00			1.00		0.95	0.96				
Satd. Flow (prot)		4561			4523		1513	1512				
Flt Permitted		0.81			1.00		0.95	0.96				
Satd. Flow (perm)		3728			4523		1513	1512				
Volume (vph)	66	903	0	0	592	50	1370	126	83	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	1003	0	0	658	56	1522	140	92	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	1076	0	0	704	0	878	872	0	0	0	0
Turn Type	D.P+P						Split					
Protected Phases	7	5	7		5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		43.0			14.0		43.0	43.0				
Effective Green, g (s)		46.0			15.0		45.0	45.0				
Actuated g/C Ratio		0.46			0.15		0.45	0.45				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		1973			678		681	680				
v/s Ratio Prot		c0.17			c0.16		c0.58	0.58				
v/s Ratio Perm		0.08										
v/c Ratio		0.55			1.04		1.29	1.28				
Uniform Delay, d1		19.5			42.5		27.5	27.5				
Progression Factor		0.09			1.00		1.00	1.00				
Incremental Delay, d2		0.8			44.8		141.0	137.9				
Delay (s)		2.6			87.3		168.5	165.4				
Level of Service		A			F		F	F				
Approach Delay (s)		2.6			87.3			167.0			0.0	
Approach LOS		A			F			F			A	
Intersection Summary												
HCM Average Control Delay		101.0					HCM Level of Service		F			
HCM Volume to Capacity ratio		0.99										
Actuated Cycle Length (s)		100.0					Sum of lost time (s)		9.0			
Intersection Capacity Utilization		93.5%					ICU Level of Service		F			
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
1: Eye Street SW & Delaware Avenue

Total Future AM
Improvement

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			0.99			1.00	
Frt		0.99			0.99			0.97			0.96	
Flt Protected		1.00			1.00			0.97			0.97	
Satd. Flow (prot)		1548			1545			1454			1446	
Flt Permitted		0.95			0.97			0.80			0.80	
Satd. Flow (perm)		1470			1504			1203			1193	
Volume (vph)	22	235	10	28	412	28	39	9	15	60	11	28
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	255	11	30	448	30	42	10	16	65	12	30
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	289	0	0	508	0	0	68	0	0	107	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases	2		6		8		8		4			
Permitted Phases	2		6		8		8		4			
Actuated Green, G (s)	66.0		66.0		24.0		24.0		24.0			
Effective Green, g (s)	67.0		67.0		25.0		25.0		25.0			
Actuated g/C Ratio	0.67		0.67		0.25		0.25		0.25			
Clearance Time (s)	5.0		5.0		5.0		5.0		5.0			
Lane Grp Cap (vph)	985		1008		301		298					
v/s Ratio Prot												
v/s Ratio Perm	0.20		0.34		0.06		0.09					
v/c Ratio	0.29		0.50		0.23		0.36					
Uniform Delay, d1	6.8		8.2		29.8		30.9					
Progression Factor	1.00		1.00		0.81		1.00					
Incremental Delay, d2	0.8		1.8		1.4		3.3					
Delay (s)	7.5		10.0		25.5		34.2					
Level of Service	A		B		C		C					
Approach Delay (s)	7.5		10.0		25.5		34.2					
Approach LOS	A		B		C		C					
Intersection Summary												
HCM Average Control Delay			13.0		HCM Level of Service				B			
HCM Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				8.0			
Intersection Capacity Utilization			81.7%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

	→	↘	↙	←	↖	↗	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↰			↰	↰	↰	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Volume (veh/h)	263	58	98	419	66	64	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	286	63	107	455	72	70	
Pedestrians	2			5	8		
Lane Width (ft)	10.0			10.0	10.0		
Walking Speed (ft/s)	4.0			4.0	4.0		
Percent Blockage	0			0	1		
Right turn flare (veh)							
Median type					None		
Median storage (veh)							
Upstream signal (ft)	670			452			
pX, platoon unblocked					0.78		
vC, conflicting volume			357		996	330	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			357		995	330	
tC, single (s)			4.1		6.4	6.2	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			91		62	90	
cM capacity (veh/h)			1195		191	705	
Direction, Lane #	EB 1	WB 1	NB 1				
Volume Total	349	562	141				
Volume Left	0	107	72				
Volume Right	63	0	70				
cSH	1700	1195	298				
Volume to Capacity	0.21	0.09	0.47				
Queue Length 95th (ft)	0	7	60				
Control Delay (s)	0.0	2.4	27.5				
Lane LOS		A	D				
Approach Delay (s)	0.0	2.4	27.5				
Approach LOS			D				
Intersection Summary							
Average Delay			5.0				
Intersection Capacity Utilization		69.4%		ICU Level of Service		C	
Analysis Period (min)		15					

The Randall School
3: Eye Street SW & S Capitol St

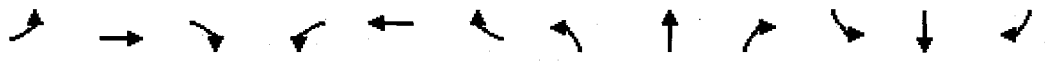
Total Future AM
Improvement

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vchpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		1.00	0.85		1.00	0.85		1.00			1.00	0.85
Flt Protected		0.98	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1451	1233		1565	1304		4253			4272	1299
Flt Permitted		0.10	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		151	1233		1565	1304		4253			4272	1299
Volume (vph)	116	120	119	0	399	230	0	2353	59	0	2104	140
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	130	129	0	434	250	0	2558	64	0	2287	152
RTOR Reduction (vph)	0	0	4	0	0	12	0	2	0	0	0	54
Lane Group Flow (vph)	0	256	125	0	434	238	0	2620	0	0	2287	98
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	pm+pt		Perm			Perm						Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		39.6	39.6		24.0	24.0		70.4			70.4	70.4
Effective Green, g (s)		39.6	39.6		29.0	29.0		72.4			72.4	72.4
Actuated g/C Ratio		0.33	0.33		0.24	0.24		0.60			0.60	0.60
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		121	407		378	315		2566			2577	784
v/s Ratio Prot		c0.12			0.28			c0.62			0.54	
v/s Ratio Perm		c0.58	0.10			0.18						0.08
v/c Ratio		2.12	0.31		1.15	0.76		1.02			0.89	0.12
Uniform Delay, d1		40.2	30.0		45.5	42.2		23.8			20.3	10.2
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		528.8	1.9		93.1	15.5		23.3			5.0	0.3
Delay (s)		569.0	31.9		138.6	57.7		47.1			25.3	10.5
Level of Service		F	C		F	E		D			C	B
Approach Delay (s)		389.1			109.0			47.1			24.4	
Approach LOS		F			F			D			C	
Intersection Summary												
HCM Average Control Delay		66.5			HCM Level of Service			E				
HCM Volume to Capacity ratio		1.38										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		109.5%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
4: M St SW & Delaware Avenue

Total Future AM
Improvement

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		  				  				  
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0				4.0
Lane Util. Factor		0.91		1.00	0.91			1.00				1.00
Frpb, ped/bikes		0.99		1.00	1.00			0.99				1.00
Flpb, ped/bikes		1.00		0.99	1.00			1.00				1.00
Frt		0.99		1.00	0.99			0.96				0.86
Flt Protected		1.00		0.95	1.00			0.97				1.00
Satd. Flow (prot)		4197		1467	4223			1437				1353
Flt Permitted		0.92		0.32	1.00			0.97				1.00
Satd. Flow (perm)		3855		502	4223			1437				1353
Volume (vph)	6	666	59	34	1590	83	48	10	28	0	0	27
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	724	64	37	1728	90	52	11	30	0	0	29
RTOR Reduction (vph)	0	10	0	0	6	0	0	17	0	0	0	20
Lane Group Flow (vph)	0	785	0	37	1812	0	0	76	0	0	0	9
Confl. Peds. (#/hr)	18		13	13		18	7		12	12		7
Turn Type	Perm			Perm			Perm					custom
Protected Phases		2			6			8				4
Permitted Phases	2			6			8					4
Actuated Green, G (s)		64.0		64.0	64.0			26.0				26.0
Effective Green, g (s)		65.0		65.0	65.0			27.0				27.0
Actuated g/C Ratio		0.65		0.65	0.65			0.27				0.27
Clearance Time (s)		5.0		5.0	5.0			5.0				5.0
Lane Grp Cap (vph)		2506		326	2745			388				365
v/s Ratio Prot					c0.43							0.01
v/s Ratio Perm		0.20		0.07				0.05				
v/c Ratio		0.31		0.11	0.66			0.20				0.02
Uniform Delay, d1		7.7		6.6	10.7			28.1				26.8
Progression Factor		1.00		0.44	0.68			1.00				1.06
Incremental Delay, d2		0.3		0.5	0.8			1.1				0.1
Delay (s)		8.0		3.4	8.2			29.3				28.6
Level of Service		A		A	A			C				C
Approach Delay (s)		8.0			8.1			29.3			28.6	
Approach LOS		A			A			C			C	
Intersection Summary												
HCM Average Control Delay		9.0			HCM Level of Service			A				
HCM Volume to Capacity ratio		0.52										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		77.7%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00						1.00	
Frt	1.00	0.99		1.00	0.99						0.94	
Flt Protected	0.95	1.00		0.95	1.00						0.99	
Satd. Flow (prot)	1486	4220		1481	4236						1420	
Flt Permitted	0.06	1.00		0.30	1.00						0.99	
Satd. Flow (perm)	98	4220		466	4236						1420	
Volume (vph)	64	740	52	36	1770	85	0	0	0	27	23	45
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	804	57	39	1924	92	0	0	0	29	25	49
RTOR Reduction (vph)	0	8	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	70	853	0	39	2016	0	0	0	0	0	103	0
Confl. Peds. (t/h)	16		15	15		16	15		9	9		15
Turn Type	Perm			Perm						Perm		
Protected Phases		2			6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)	63.0	63.0		63.0	63.0						26.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0						28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64						0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)	63	2701		298	2711						398	
v/s Ratio Prot		0.20			0.48							
v/s Ratio Perm	0.72			0.08							0.07	
v/c Ratio	1.11	0.32		0.13	0.74						0.26	
Uniform Delay, d1	18.0	8.1		7.1	12.4						27.9	
Progression Factor	1.72	0.98		1.11	0.82						1.03	
Incremental Delay, d2	146.0	0.3		0.6	1.2						1.6	
Delay (s)	176.9	8.3		8.4	11.4						30.5	
Level of Service	F	A		A	B						C	
Approach Delay (s)		21.0			11.3			0.0			30.5	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM Average Control Delay		14.9			HCM Level of Service					B		
HCM Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)				8.0			
Intersection Capacity Utilization		87.4%			ICU Level of Service				E			
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
6: M St SW & Local S Cap SB

Total Future AM
Improvement

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑↓	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Frt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		1.00					0.95	0.97	
Satd. Flow (prot)		4577	1425		4566					1513	1509	
Flt Permitted		1.00	1.00		0.90					0.95	0.97	
Satd. Flow (perm)		4577	1425		4101					1513	1509	
Volume (vph)	0	511	279	90	1872	0	0	0	0	458	59	41
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	568	310	100	2080	0	0	0	0	509	66	46
RTOR Reduction (vph)	0	0	245	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	568	65	0	2180	0	0	0	0	310	305	0
Turn Type		Perm D.P+P								Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		19.0	19.0		65.0					23.0	23.0	
Effective Green, g (s)		21.0	21.0		66.0					25.0	25.0	
Actuated g/C Ratio		0.21	0.21		0.66					0.25	0.25	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		961	299		2916					378	377	
v/s Ratio Prot		0.12			c0.34					c0.20	0.20	
v/s Ratio Perm			0.05		c0.16							
v/c Ratio		0.59	0.22		0.75					0.82	0.81	
Uniform Delay, d1		35.6	32.7		11.4					35.4	35.3	
Progression Factor		0.84	2.83		0.03					1.00	1.00	
Incremental Delay, d2		2.6	1.6		0.2					17.8	16.9	
Delay (s)		32.5	94.1		0.5					53.2	52.2	
Level of Service		C	F		A					D	D	
Approach Delay (s)		54.2			0.5			0.0			52.7	
Approach LOS		D			A			A			D	
Intersection Summary												
HCM Average Control Delay		22.1			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.77										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		88.6%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
7: H Street SW & Site Driveway

Total Future AM
Improvement



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	22	0	18	0	0	0	82	0	0	0	0	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	0	20	0	0	0	89	0	0	0	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None				None	
Median storage (veh)												
Upstream signal (ft)		552										
pX, platoon unblocked												
vC, conflicting volume	0			20			61	58	10	58	67	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			20			61	58	10	58	67	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			90	100	100	100	100	100
cM capacity (veh/h)	1623			1597			921	821	1072	929	811	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	43	0	89	3								
Volume Left	24	0	89	0								
Volume Right	20	0	0	3								
cSH	1623	1700	921	1085								
Volume to Capacity	0.01	0.00	0.10	0.00								
Queue Length 95th (ft)	1	0	8	0								
Control Delay (s)	4.0	0.0	9.3	8.3								
Lane LOS	A		A	A								
Approach Delay (s)	4.0	0.0	9.3	8.3								
Approach LOS			A	A								
Intersection Summary												
Average Delay			7.6									
Intersection Capacity Utilization			21.7%				ICU Level of Service			A		
Analysis Period (min)			15									

The Randall School
66: M St SW & Local S Cap NB

Total Future AM
Improvement

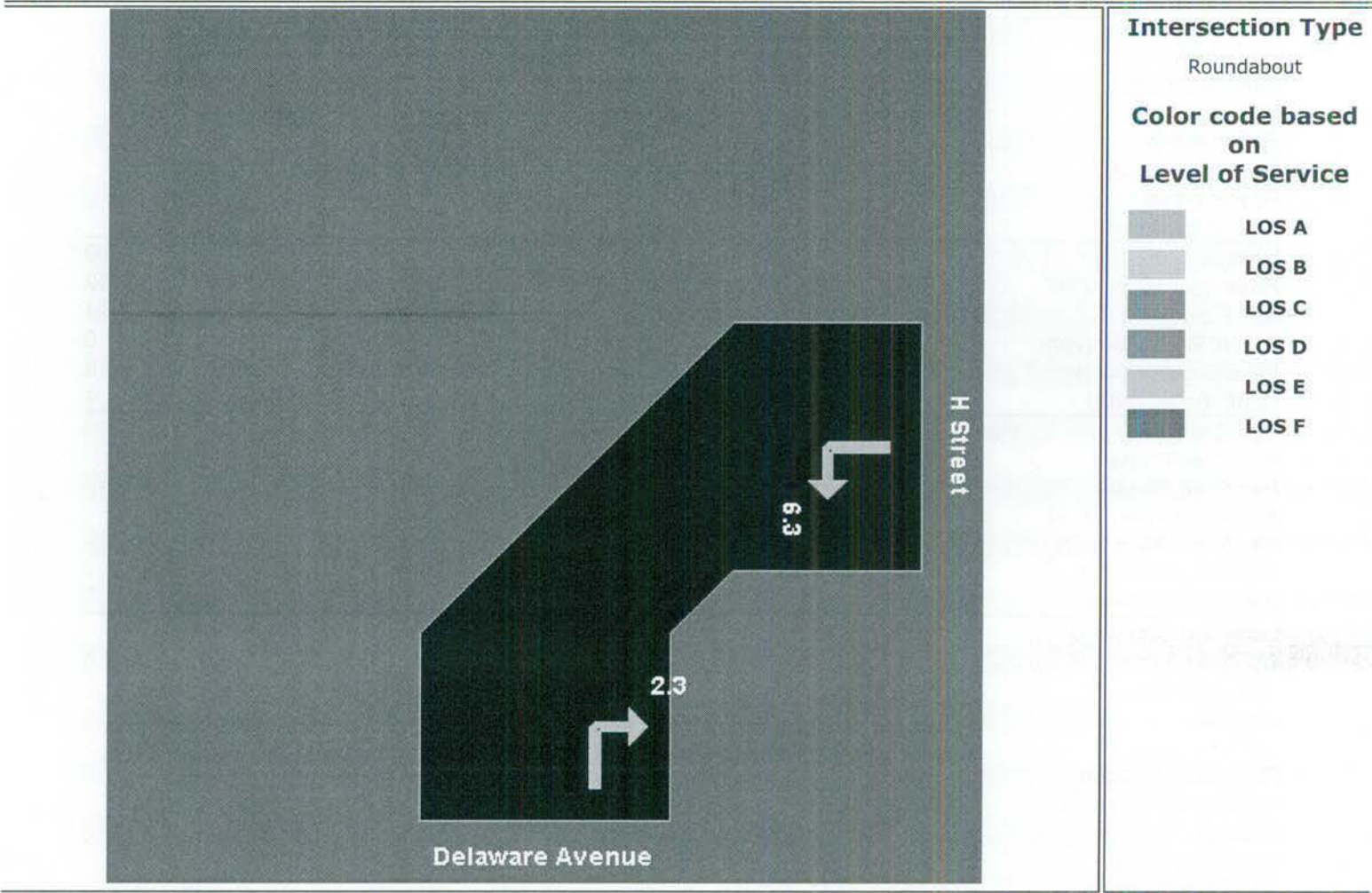
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑↑↑			↑↑↑			↑	↑				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Fr _t		1.00			0.99		1.00	0.98				
Flt Protected		1.00			1.00		0.95	0.96				
Satd. Flow (prot)		4561			4523		1513	1512				
Flt Permitted		0.82			1.00		0.95	0.96				
Satd. Flow (perm)		3753			4523		1513	1512				
Volume (vph)	66	903	0	0	592	50	1370	126	83	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	1003	0	0	658	56	1522	140	92	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	1076	0	0	704	0	878	872	0	0	0	0
Turn Type	D.F+P						Split					
Protected Phases	7	5 7			5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		43.0			16.0		43.0	43.0				
Effective Green, g (s)		46.0			17.0		45.0	45.0				
Actuated g/C Ratio		0.46			0.17		0.45	0.45				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		1961			769		681	680				
v/s Ratio Prot		c0.16			c0.16		c0.58	0.58				
v/s Ratio Perm		0.09										
v/c Ratio		0.55			0.92		1.29	1.28				
Uniform Delay, d ₁		19.5			40.8		27.5	27.5				
Progression Factor		0.09			1.00		1.00	1.00				
Incremental Delay, d ₂		0.8			17.4		141.0	137.9				
Delay (s)		2.6			58.2		168.5	165.4				
Level of Service		A			E		F	F				
Approach Delay (s)		2.6			58.2			167.0			0.0	
Approach LOS		A			E			F			A	
Intersection Summary												
HCM Average Control Delay		95.1			HCM Level of Service		F					
HCM Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)		9.0					
Intersection Capacity Utilization		93.5%			ICU Level of Service		F					
Analysis Period (min)		15										
c Critical Lane Group												

Control Delay (Average)

Average control delay per vehicle (seconds)

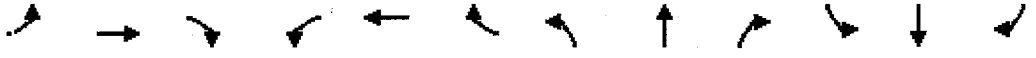
Randall School

Delaware Avenue & H Street TF AM Peak Hour



The Randall School
1: Eye Street SW & Delaware Avenue

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.97			0.93			0.96	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		1550			1510			1410			1438	
Flt Permitted		0.96			0.93			0.86			0.64	
Satd. Flow (perm)		1499			1406			1231			943	
Volume (vph)	50	798	34	18	214	56	45	25	80	87	15	50
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	867	37	20	233	61	49	27	87	95	16	54
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	957	0	0	314	0	0	163	0	0	165	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		72.0			72.0			18.0			18.0	
Effective Green, g (s)		73.0			73.0			19.0			19.0	
Actuated g/C Ratio		0.73			0.73			0.19			0.19	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1094			1026			234			179	
v/s Ratio Prot												
v/s Ratio Perm		c0.64			0.22			0.13			c0.17	
v/c Ratio		0.87			0.31			0.70			0.92	
Uniform Delay, d1		10.1			4.7			37.8			39.8	
Progression Factor		1.00			1.00			0.87			1.00	
Incremental Delay, d2		9.8			0.8			15.4			49.3	
Delay (s)		19.8			5.5			48.4			89.1	
Level of Service		B			A			D			F	
Approach Delay (s)		19.8			5.5			48.4			89.1	
Approach LOS		B			A			D			F	
Intersection Summary												
HCM Average Control Delay		27.1			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.88										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		88.7%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
3: Eye Street SW & S Capitol St

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↗		↑	↗		↑↑↑			↑↑↑	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		0.97	0.85		1.00	0.85		0.99			1.00	0.85
Flt Protected		0.99	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1413	1233		1565	1304		4242			4272	1299
Flt Permitted		0.66	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		943	1233		1565	1304		4242			4272	1299
Volume (vph)	105	186	541	0	167	290	0	1758	71	0	2181	121
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	202	588	0	182	315	0	1911	77	0	2371	132
RTOR Reduction (vph)	0	8	8	0	0	19	0	4	0	0	0	41
Lane Group Flow (vph)	0	385	503	0	182	296	0	1984	0	0	2371	91
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	Perm		Perm			Perm						Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		29.0	29.0		24.0	24.0		81.0			81.0	81.0
Effective Green, g (s)		29.0	29.0		29.0	29.0		83.0			83.0	83.0
Actuated g/C Ratio		0.24	0.24		0.24	0.24		0.69			0.69	0.69
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		228	298		378	315		2934			2955	898
v/s Ratio Prot					0.12			0.47			0.56	
v/s Ratio Perm		0.41	0.41			0.23						0.07
v/c Ratio		1.69	1.69		0.48	0.94		0.68			0.80	0.10
Uniform Delay, d1		45.5	45.5		39.0	44.6		10.7			12.8	6.1
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		328.9	324.3		4.3	37.4		1.3			2.4	0.2
Delay (s)		374.4	369.8		43.4	82.1		12.0			15.2	6.4
Level of Service		F	F		D	F		B			B	A
Approach Delay (s)		371.8			67.9			12.0			14.8	
Approach LOS		F			E			B			B	
Intersection Summary												
HCM Average Control Delay		73.1			HCM Level of Service			E				
HCM Volume to Capacity ratio		1.03										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		106.8%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
6: M St SW & Local S Cap SB

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Frt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		0.99					0.95	0.98	
Satd. Flow (prot)		4577	1425		4544					1513	1525	
Flt Permitted		1.00	1.00		0.70					0.95	0.98	
Satd. Flow (perm)		4577	1425		3199					1513	1525	
Volume (vph)	0	763	607	145	851	0	0	0	0	299	87	30
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	848	674	161	946	0	0	0	0	332	97	33
RTOR Reduction (vph)	0	0	398	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	848	276	0	1107	0	0	0	0	228	228	0
Turn Type		Perm D.P+P								Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		39.0	39.0		64.0					24.0	24.0	
Effective Green, g (s)		41.0	41.0		65.0					26.0	26.0	
Actuated g/C Ratio		0.41	0.41		0.65					0.26	0.26	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		1877	584		2402					393	397	
v/s Ratio Prot		0.19			c0.11					c0.15	0.15	
v/s Ratio Perm			c0.19		0.19							
v/c Ratio		0.45	0.47		0.46					0.58	0.57	
Uniform Delay, d1		21.4	21.6		8.7					32.2	32.2	
Progression Factor		0.98	7.14		0.08					1.00	1.00	
Incremental Delay, d2		0.6	2.0		0.5					6.1	5.9	
Delay (s)		21.4	156.2		1.1					38.4	38.1	
Level of Service		C	F		A					D	D	
Approach Delay (s)		81.1			1.1			0.0			38.2	
Approach LOS		F			A			A			D	
Intersection Summary												
HCM Average Control Delay			46.1		HCM Level of Service					D		
HCM Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					9.0		
Intersection Capacity Utilization			86.1%		ICU Level of Service					E		
Analysis Period (min)			15									
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↑	↑				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Frt		1.00			0.96		1.00	0.95				
Flt Protected		1.00			1.00		0.95	0.98				
Satd. Flow (prot)		4567			4403		1513	1496				
Flt Permitted		0.88			1.00		0.95	0.98				
Satd. Flow (perm)		4040			4403		1513	1496				
Volume (vph)	47	1015	0	0	656	222	340	102	82	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	52	1128	0	0	729	247	378	113	91	0	0	0
RTOR Reduction (vph)	0	0	0	0	61	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	1180	0	0	915	0	287	279	0	0	0	0
Turn Type	D.P+P						Split					
Protected Phases	7	5 7			5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		64.0			35.0		22.0	22.0				
Effective Green, g (s)		67.0			36.0		24.0	24.0				
Actuated g/C Ratio		0.67			0.36		0.24	0.24				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		2870			1585		363	359				
v/s Ratio Prot		c0.13			c0.21		c0.19	0.19				
v/s Ratio Perm		0.15										
v/c Ratio		0.41			0.58		0.79	0.78				
Uniform Delay, d1		7.5			25.8		35.6	35.5				
Progression Factor		0.13			1.00		1.00	1.00				
Incremental Delay, d2		0.4			1.5		16.0	15.2				
Delay (s)		1.4			27.4		51.6	50.7				
Level of Service		A			C		D	D				
Approach Delay (s)		1.4			27.4		51.2				0.0	
Approach LOS		A			C		D				A	
Intersection Summary												
HCM Average Control Delay		21.2			HCM Level of Service		C					
HCM Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)		9.0					
Intersection Capacity Utilization		68.7%			ICU Level of Service		C					
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
1: Eye Street SW & Delaware Avenue

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0			4.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			0.99			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.97			0.93			0.96	
Flt Protected		1.00			1.00			0.99			0.97	
Satd. Flow (prot)		1550			1510			1410			1438	
Flt Permitted		0.96			0.93			0.88			0.71	
Satd. Flow (perm)		1499			1404			1260			1048	
Volume (vph)	50	798	34	18	214	56	45	25	80	87	15	50
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	867	37	20	233	61	49	27	87	95	16	54
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	957	0	0	314	0	0	163	0	0	165	0
Confl. Peds. (#/hr)	12		11	11		12	4		1	1		4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)		65.0			65.0			25.0			25.0	
Effective Green, g (s)		66.0			66.0			26.0			26.0	
Actuated g/C Ratio		0.66			0.66			0.26			0.26	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		989			927			328			272	
v/s Ratio Prot												
v/s Ratio Perm		c0.64			0.22			0.13			c0.16	
v/c Ratio		0.97			0.34			0.50			0.61	
Uniform Delay, d1		16.0			7.4			31.4			32.5	
Progression Factor		1.00			1.00			0.85			1.00	
Incremental Delay, d2		21.7			1.0			5.2			9.7	
Delay (s)		37.7			8.4			32.0			42.2	
Level of Service		D			A			C			D	
Approach Delay (s)		37.7			8.4			32.0			42.2	
Approach LOS		D			A			C			D	
Intersection Summary												
HCM Average Control Delay		31.8			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.86										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		88.7%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩			↩	↩	↩
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	712	187	75	217	68	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	774	203	82	236	74	60
Pedestrians	2			5	8	
Lane Width (ft)	10.0			10.0	10.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			0	1	
Right turn flare (veh)						
Median type				None		
Median storage (veh)						
Upstream signal (ft)	670			452		
pX, platoon unblocked			0.48		0.52	0.48
vC, conflicting volume			985		1284	889
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			969		1315	768
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			76		0	69
cM capacity (veh/h)			339		68	191
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	977	317	134			
Volume Left	0	82	74			
Volume Right	203	0	60			
cSH	1700	339	96			
Volume to Capacity	0.57	0.24	1.39			
Queue Length 95th (ft)	0	23	246			
Control Delay (s)	0.0	8.8	308.3			
Lane LOS		A	F			
Approach Delay (s)	0.0	8.8	308.3			
Approach LOS			F			
Intersection Summary						
Average Delay			30.8			
Intersection Capacity Utilization			90.7%		ICU Level of Service	E
Analysis Period (min)			15			

The Randall School
3: Eye Street SW & S Capitol St

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0		4.0			4.0	4.0
Lane Util. Factor		0.95	0.95		1.00	1.00		0.91			0.91	1.00
Frpb, ped/bikes		0.99	0.98		1.00	0.98		1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Frt		0.96	0.85		1.00	0.85		0.99			1.00	0.85
Flt Protected		0.99	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)		1401	1233		1565	1304		4242			4272	1299
Flt Permitted		0.66	1.00		1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)		933	1233		1565	1304		4242			4272	1299
Volume (vph)	105	186	541	0	167	290	0	1758	71	0	2181	121
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	202	588	0	182	315	0	1911	77	0	2371	132
RTOR Reduction (vph)	0	1	1	0	0	96	0	4	0	0	0	46
Lane Group Flow (vph)	0	423	479	0	182	219	0	1984	0	0	2371	86
Confl. Peds. (#/hr)	5		10	10		5	2		6	6		2
Turn Type	pr+pt		Perm			Perm						Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4			8						6
Actuated Green, G (s)		46.7	46.7		24.0	24.0		63.3			63.3	63.3
Effective Green, g (s)		46.7	46.7		29.0	29.0		65.3			65.3	65.3
Actuated g/C Ratio		0.39	0.39		0.24	0.24		0.54			0.54	0.54
Clearance Time (s)		4.0	4.0		9.0	9.0		6.0			6.0	6.0
Lane Grp Cap (vph)		417	480		378	315		2308			2325	707
v/s Ratio Prot		0.12			0.12			0.47			0.56	
v/s Ratio Perm		0.28	0.39			0.17						0.07
v/c Ratio		1.01	1.00		0.48	0.70		0.86			1.02	0.12
Uniform Delay, d1		36.6	36.6		39.0	41.5		23.4			27.4	13.4
Progression Factor		1.00	1.00		1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2		47.6	40.5		4.3	12.1		4.5			23.8	0.4
Delay (s)		84.3	77.0		43.4	53.5		27.9			51.2	13.7
Level of Service		F	E		D	D		C			D	B
Approach Delay (s)		80.4			49.8			27.9			49.2	
Approach LOS		F			D			C			D	
Intersection Summary												
HCM Average Control Delay		46.9			HCM Level of Service			D				
HCM Volume to Capacity ratio		1.02										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		106.8%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
4: M St SW & Delaware Avenue

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑			↑↓				↑
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0			4.0				4.0
Lane Util. Factor		0.91		1.00	0.91			1.00				1.00
Frpb, ped/bikes		1.00		1.00	0.99			1.00				0.98
Flpb, ped/bikes		1.00		1.00	1.00			0.99				1.00
Frt		0.99		1.00	0.99			0.98				0.86
Flt Protected		1.00		0.95	1.00			0.97				1.00
Satd. Flow (prot)		4228		1481	4201			1473				1327
Flt Permitted		0.93		0.14	1.00			0.97				1.00
Satd. Flow (perm)		3919		217	4201			1473				1327
Volume (vph)	11	1279	63	18	963	75	67	18	13	0	0	52
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1390	68	20	1047	82	73	20	14	0	0	57
RTOR Reduction (vph)	0	5	0	0	9	0	0	5	0	0	0	42
Lane Group Flow (vph)	0	1465	0	20	1120	0	0	102	0	0	0	15
Confl. Peds. (#/hr)	18		13	13		18	7		12	12		7
Turn Type	Perm			Perm		Perm						custom
Protected Phases		2			6			8				
Permitted Phases	2			6			8					4
Actuated Green, G (s)		64.0		64.0	64.0			26.0				26.0
Effective Green, g (s)		65.0		65.0	65.0			27.0				27.0
Actuated g/C Ratio		0.65		0.65	0.65			0.27				0.27
Clearance Time (s)		5.0		5.0	5.0			5.0				5.0
Lane Grp Cap (vph)		2547		141	2731			398				358
v/s Ratio Prot					0.27							
v/s Ratio Perm		0.37		0.09				0.07				0.01
v/c Ratio		0.58		0.14	0.41			0.26				0.04
Uniform Delay, d1		9.8		6.7	8.4			28.6				27.0
Progression Factor		1.00		0.96	0.92			1.00				1.00
Incremental Delay, d2		1.0		2.0	0.4			1.5				0.2
Delay (s)		10.7		8.5	8.2			30.2				27.1
Level of Service		B		A	A			C				C
Approach Delay (s)		10.7			8.2			30.2			27.1	
Approach LOS		B			A			C			C	
Intersection Summary												
HCM Average Control Delay		10.8				HCM Level of Service		B				
HCM Volume to Capacity ratio		0.48										
Actuated Cycle Length (s)		100.0				Sum of lost time (s)		8.0				
Intersection Capacity Utilization		65.9%				ICU Level of Service		C				
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
5: M St SW & Half St SW

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0						4.0	
Lane Util. Factor	1.00	0.91		1.00	0.91						1.00	
Frbp, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00						0.99	
Frt	1.00	1.00		1.00	0.99						0.96	
Flt Protected	0.95	1.00		0.95	1.00						0.97	
Satd. Flow (prot)	1482	4261		1485	4205						1445	
Flt Permitted	0.24	1.00		0.08	1.00						0.97	
Satd. Flow (perm)	368	4261		121	4205						1445	
Volume (vph)	113	1706	23	39	887	83	0	0	0	82	29	45
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	123	1854	25	42	964	90	0	0	0	89	32	49
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	123	1878	0	42	1054	0	0	0	0	0	170	0
Confl. Peds. (#/hr)	16		15	15		16	15			9	9	15
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	2			6						4		
Permitted Phases	2			6						4		
Actuated Green, G (s)	63.0	63.0		63.0	63.0						26.0	
Effective Green, g (s)	64.0	64.0		64.0	64.0						28.0	
Actuated g/C Ratio	0.64	0.64		0.64	0.64						0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0						6.0	
Lane Grp Cap (vph)	236	2727		77	2691						405	
v/s Ratio Prot		0.44			0.25							
v/s Ratio Perm	0.33			0.35							0.12	
v/c Ratio	0.52	0.69		0.55	0.39						0.42	
Uniform Delay, d1	9.7	11.6		10.0	8.6						29.4	
Progression Factor	1.90	1.92		0.97	0.84						0.85	
Incremental Delay, d2	7.5	1.3		23.5	0.4						2.4	
Delay (s)	25.9	23.5		33.2	7.6						27.3	
Level of Service	C	C		C	A						C	
Approach Delay (s)		23.7			8.6			0.0			27.3	
Approach LOS		C			A			A			C	
Intersection Summary												
HCM Average Control Delay	18.8			HCM Level of Service			B					
HCM Volume to Capacity ratio	0.61											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	91.1%			ICU Level of Service			F					
Analysis Period (min)	15											
c Critical Lane Group												

The Randall School
6: M St SW & Local S Cap SB

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑		↑↑↑					↑	↑	
Ideal Flow (v _{phpl})	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0	3.0		3.0					3.0	3.0	
Lane Util. Factor		0.91	1.00		0.91					0.95	0.95	
Frt		1.00	0.85		1.00					1.00	0.98	
Flt Protected		1.00	1.00		0.99					0.95	0.98	
Satd. Flow (prot)		4577	1425		4544					1513	1525	
Flt Permitted		1.00	1.00		0.70					0.95	0.98	
Satd. Flow (perm)		4577	1425		3224					1513	1525	
Volume (vph)	0	763	607	145	851	0	0	0	0	299	87	30
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	848	674	161	946	0	0	0	0	332	97	33
RTOR Reduction (vph)	0	0	371	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	848	303	0	1107	0	0	0	0	228	228	0
Turn Type		Perm D,P+P								Split		
Protected Phases		4		3	3 4					6	6	
Permitted Phases			4	4								
Actuated Green, G (s)		43.0	43.0		68.0					20.0	20.0	
Effective Green, g (s)		45.0	45.0		69.0					22.0	22.0	
Actuated g/C Ratio		0.45	0.45		0.69					0.22	0.22	
Clearance Time (s)		5.0	5.0							5.0	5.0	
Lane Grp Cap (vph)		2060	641		2541					333	336	
v/s Ratio Prot		0.19			0.10					0.15	0.15	
v/s Ratio Perm			0.21		0.20							
v/c Ratio		0.41	0.47		0.44					0.68	0.68	
Uniform Delay, d1		18.6	19.2		6.9					35.8	35.8	
Progression Factor		0.98	7.68		0.08					1.00	1.00	
Incremental Delay, d2		0.4	1.8		0.4					10.9	10.5	
Delay (s)		18.7	149.4		1.0					46.7	46.3	
Level of Service		B	F		A					D	D	
Approach Delay (s)		76.5			1.0			0.0			46.5	
Approach LOS		E			A			A			D	
Intersection Summary												
HCM Average Control Delay		45.0		HCM Level of Service						D		
HCM Volume to Capacity ratio		0.51										
Actuated Cycle Length (s)		100.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization		86.1%		ICU Level of Service						E		
Analysis Period (min)		15										
c Critical Lane Group												

The Randall School
7: H Street SW & Site Driveway

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Volume (veh/h)	11	0	90	0	0	0	66	0	0	0	0	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	98	0	0	0	72	0	0	0	0	60
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None				None	
Median storage veh												
Upstream signal (ft)	551											
pX, platoon unblocked												
vC, conflicting volume	0			98			133	73	49	73	122	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			98			133	73	49	73	122	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			91	100	100	100	100	94
cM capacity (veh/h)	1623			1495			789	812	1020	913	763	1085
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	110	0	72	60								
Volume Left	12	0	72	0								
Volume Right	98	0	0	60								
cSH	1623	1700	789	1085								
Volume to Capacity	0.01	0.00	0.09	0.06								
Queue Length 95th (ft)	1	0	7	4								
Control Delay (s)	0.8	0.0	10.0	8.5								
Lane LOS	A		B	A								
Approach Delay (s)	0.8	0.0	10.0	8.5								
Approach LOS			B	A								
Intersection Summary												
Average Delay				5.5								
Intersection Capacity Utilization				24.3%	ICU Level of Service				A			
Analysis Period (min)				15								

The Randall School
66: M St SW & Local S Cap NB

Total Future PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑↑		↑	↑				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		3.0			3.0		3.0	3.0				
Lane Util. Factor		0.91			0.91		0.95	0.95				
Frt		1.00			0.96		1.00	0.95				
Flt Protected		1.00			1.00		0.95	0.98				
Satd. Flow (prot)		4567			4403		1513	1496				
Flt Permitted		0.88			1.00		0.95	0.98				
Satd. Flow (perm)		4014			4403		1513	1496				
Volume (vph)	47	1015	0	0	656	222	340	102	82	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	52	1128	0	0	729	247	378	113	91	0	0	0
RTOR Reduction (vph)	0	0	0	0	62	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	1180	0	0	914	0	287	279	0	0	0	0
Turn Type	D,P+P						Split					
Protected Phases	7	5 7			5		2	2				
Permitted Phases	5											
Actuated Green, G (s)		64.0			38.0		22.0	22.0				
Effective Green, g (s)		67.0			39.0		24.0	24.0				
Actuated g/C Ratio		0.67			0.39		0.24	0.24				
Clearance Time (s)					4.0		5.0	5.0				
Lane Grp Cap (vph)		2844			1717		363	359				
v/s Ratio Prot		0.12			0.21		0.19	0.19				
v/s Ratio Perm		0.16										
v/c Ratio		0.41			0.53		0.79	0.78				
Uniform Delay, d1		7.5			23.5		35.6	35.5				
Progression Factor		0.15			1.00		1.00	1.00				
Incremental Delay, d2		0.4			1.2		16.0	15.2				
Delay (s)		1.6			24.7		51.6	50.7				
Level of Service		A			C		D	D				
Approach Delay (s)		1.6			24.7		51.2				0.0	
Approach LOS		A			C		D				A	
Intersection Summary												
HCM Average Control Delay		20.3			HCM Level of Service		C					
HCM Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)		9.0					
Intersection Capacity Utilization		68.7%			ICU Level of Service		C					
Analysis Period (min)		15										
c Critical Lane Group												

Control Delay (Average)

Average control delay per vehicle (seconds)

Randall School

Delaware Avenue & H Street TF PM Peak Hour

